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AN ESSAY

ON THE

OPERATION FOR CLEFT PALATE.

BY GEORGE BUSHE.

Case

NEW-YORK:

PUBLISHED BY WILLIAM JACKSON,

53 CEDAR-STREET.

1835.

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NEW YORK, N. Y.

AN ESSAY

OPERATION FOR LEFT PALATE

OF GEORGE BROWN

NEW YORK

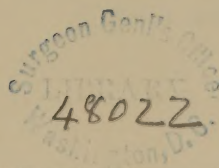
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OPERATION FOR CLEFT PALATE

BY GEORGE HUSHE

JAMES VAN NORDEN, PRINTER, 49 WILLIAM-STREET.

NEW-YORK

PUBLISHED BY WILLIAM JACKSON

OF NEW-YORK

1851

TO

PHILIB-JOS. ROUX,

CHIRURGIEN DE L'HOPITAL DE LA CHARITÉ, &c.

SIR,

As your success, in removing the congenital Cleft of the Palate, induced me to devise and practise the method of operating, recommended in the following pages, I feel great satisfaction in dedicating them to you,

I have the honour to be, Sir,

Your obedient servant,

GEORGE BUSHE.

58 WALKER-STREET,

NEW-YORK, *June 16th*, 1835.

AN ESSAY
ON THE
OPERATION FOR CLEFT PALATE.

It has fallen to my lot to have performed this operation, perhaps, as often as most surgeons actively engaged in the practice of their profession; and, from tolerably extensive experience and much reflection, I have been led to devise plans for its execution, which have proved so effectual, that, I feel it incumbent on me to lay them before the profession: a task which I should have long since performed, had not other avocations occupied the few hours I have occasionally been enabled to devote to study and composition.

It is of the utmost importance that the surgeon should avoid operating indiscriminately, on all cases, as they may occur to him, else his failures will not only very seriously affect his reputation, but, what is of paramount importance, prejudice the public against one of the most useful operations in surgery. An exposition, therefore, of the causes which contra-indicate it, shall first occupy our attention.

1st. Infancy, childhood, and boyhood—girlhood are very unpropitious periods for the performance of this operation, as we shall now demonstrate.

Firstly.—The mouth is too small to allow of that exactness so necessary in all our manipulations.

Secondly.—More resolution and acquiescence with our wishes is indispensable, than persons during those periods can summon to their aid, when suffering under protracted pain and irritation of the fauces.

Thirdly.—In consequence of the greater extent and rapidity of nutrition, as well as the more exalted sensibility of the stomach in young persons, they can but ill bear the long continued abstinence that must be observed after this operation.

Fourthly.—From the greater expenditure of the thinner parts of the blood, in consequence of the abundance of the secretions in the earlier periods of life, the fauces are more likely to suffer from inflammation when drink is withheld, an occurrence which will either prevent or destroy adhesion.

2d. Disease of the respiratory organs cannot fail to mar our success, by producing cough, and thus dislodging the sutures.

3d. Enlargement of the tonsils, or other disease of the fauces, as also polypi and various affections of the nose, by impeding the passage of air to and from the lungs, and creating irritation, vitiated and abundant secretions, will prostrate our best exertions.

4th. Disorder of the stomach, giving rise to vomiting, extrication of gas and regurgitation of food, must exert a baneful influence on the issue of the case, by the traction of the sutures during each of these efforts.

5th. Excessive irritability is one of the greatest annoyances we have

to encounter, not only during the operation, but afterwards ; for then the patient is continually coughing, expectorating and endeavouring to detach mucus from the posterior part of the mouth and fauces. We may generally be able to ascertain this condition of the system, by passing instruments into and detaining them in the pharynx for a moderate length of time, when, should the patient be irritable, his anxiety and restlessness will become apparent ; much also may be learnt by studying his character, and inquiring into his conduct in any illness he may have had. Operating surgeons know well, that although this state depends much upon organization, yet that it is frequently produced, and always increased, by mental and bodily indisposition ; therefore, we ought to postpone the operation, until, by air, exercise, diet, appropriate remedies, and the constant exercise of moral restraint over his feelings, the infirmity be either removed or palliated.

6th. Preternatural thirst, whether the result of disease, habit or idiosyncrasy, constitutes an insurmountable obstacle to success ; for in a very short time, the heat, dryness and sense of constriction in the fauces, as well as the diminution and viscosity of the saliva and mucus, will become so intolerable that the patient cannot resist drinking. Indeed, should a surgeon commit so glaring an oversight as to operate on a patient thus affected, he ought not to withhold drink in moderate quantity, else the very slender chance of success which exists will be destroyed, by the inflammation that must inevitably ensue, attended with excessive restlessness, fever and delirium. It therefore becomes our duty, when such a patient consults *us*, to ascertain *whether* the affection be the result of disease, habit or organization. If the consequence of disease, appropriate means must be employed to combat it ; if of habit, moral discipline should be strictly enjoined ; and if of organization, the ex-


periment ought to be made, whether, by repeatedly injecting fluid in small quantities into the rectum, and bathing the surface, the thirst can be sufficiently allayed for a length of time equal to that during which we are generally compelled to withhold drink after the operation. Provided, then, in the first case, that the disease be removed ; in the second, that the habit be broken ; and, in the third, that the experiment succeeds, we may undertake the operation, but not otherwise.

7th. Hot weather, because of the restlessness which it gives rise to, and above all, the continual wasting of the thinner parts of the blood by cutaneous exhalation, will operate seriously to the patient's disadvantage.

8th. Finally, complete separation of the bony palate to the extent of an inch, will render the case unfit for operation ; because, in such instances, each half is directed considerably upwards and inwards ; which renders the approximation of the sides of the velum difficult, and creates such tension, that the sutures are torn out in a short time, generally before there is any union.

When none of these objections exist, and the operation is determined on, the four following points should be attended to.

1st. For a few weeks previous to the operation, the patient should take regular exercise in the open air, being careful to avoid taking cold ; and by regulating his diet and clothing, to establish a healthy state of the skin and mucous membranes.

2d. At least a month before the appointed time, two thirds of each half of the uvula ought to be removed ; otherwise, after the coaptation of the velum, they will be separated in this manner,  by the pressure of the base of the tongue ; and, being swollen, will irritate the fauces and thus give rise to cough and constant efforts to swallow.

3rd. During the week preceding the operation, blunt instruments should be passed into the pharynx daily, with a view of accustoming the parts to their presence. The patient ought also, to separate his jaws and retain them so for as long a period as he can, in order to habituate the submental muscles to the protracted duty they will have to perform, during each stage of the operation.

4th. The operation ought to be commenced four hours after an ordinary meal; for when the patient eats heartily immediately before its performance, should the irritation of the fauces give rise to vomiting,* our proceedings will be deranged and the patient deprived of the advantages of the repast he has taken. At all events digestion will be disturbed, and flatulence, eructations and a train of disagreeable symptoms ensue.

These different measures are of more importance, than may appear at first sight; and the advantages I have derived from observing them have contributed, in no small degree, to my success.

I divide the operation into two stages, viz; the section of the palate and the insertion of the sutures; these I fix at the interval of four hours. In the commencement of my career, I inserted the sutures first, as had been recommended by others, but soon discovered that the irritation thus produced threw the muscles into such violent action, that it was

* This once occurred to me, and proved very troublesome. It may be argued, however, that nausea is more easily induced when the stomach is empty. This, I am ready to admit; but four hours after an ordinary meal, the stomach is not empty; and it should not be forgotten that plenitude, though not quite so favourable to nausea, is more favourable to the effort of vomiting, than vacuity of the stomach. Very moderate distension of this viscus towards the close of chymification, may be said to be its state of greatest tolerance.

only by good management or accident the velum could afterwards be divided in a regular manner; besides, I observed that the ligatures were occasionally in danger of being cut, and that they interfered in no small degree with the movements of the knife. I then reversed the order of proceeding, incising the edges of the velum before inserting the sutures; but this method, though preferable to the former, proved objectionable from the irritation of the muscles which ensued, and embarrassed me in passing the needles, as well as a lesser annoyance produced by the bleeding. I therefore now prefer waiting for four hours after making the sections of the velum, before inserting the sutures; recommending the patient, in the interval, to gargle his throat with iced water. By this method, the inflammation is diminished and the parts obtain their ultimate degree of tumefaction, so that we are enabled to avoid all risk of tying the ligatures either too tight or too slack. Finally, the spasm induced by the knife, will have had time to subside before the insertion of the sutures is commenced.

The excision of the borders of the velum should be performed with great care, so that each cut surface may be perfectly smooth, and equal in depth to the thickness of this curtain. By not attending to these points, surgeons who perform the rest of the operation well, have the chagrin of seeing the adjusted surfaces separate, when the sutures are either removed or torn out by the action of the muscles.* The idea that it is only necessary to redden the edges, coupled with the de-

* When adhesion does not take place, even though the edges of the velum be brought easily into contact, the sutures will generally be torn out. When union does take place, the plasticity of the effused lymph gives steadiness to the velum, and counteracts the traction which the muscles exert, until this lymph becomes organized.

sire to save as much as possible of parts already too scanty, has led surgeons to trim off merely the more convex portions of each border of the cleft velum, while the inaptness of the instruments used, and the mobility of this curtain, have caused them to make the sections uneven. It is, therefore, of the first consequence to remove as much as may be necessary to render each cut surface equal to the thickness of the velum, and, by great caution, to make it vertical and even. The distance of the incision from the edge of the velum to effect this object, will vary in different subjects, from half a line to a line, or even more.

To accomplish this part of the operation, I use two instruments, viz : a knife and forceps, both of which are represented in the plates. The blade of this knife is one inch and a quarter in length, one sixth of an inch in breadth at its widest part, and sharp on the back for a quarter of an inch from the point. The handle is rather delicate, and about five inches long. I prefer this to the double edged lancet-shaped scalpel. used by Dieffenbach, because, being more narrow and blunt on the back, it is free from all danger of cutting the velum without the line of incision, as we approach the angle.* The forceps is seven inches in length, and, with the exception of its curve and extremities, resembles the instrument used for extracting nasal polypi. It is so bent, that the operator's hand may correspond to the side of the patient's face ; thus, permitting a clear view of the interior of the mouth, an object of great importance, and which cannot be satisfactorily obtained, when the instruments recommended by Graefe, Ebel and others, are used. The extremity of each chop of this forceps is half an inch long, three eighths broad, and one six-

*This accident once occurred to me in using Dieffenbach's knife. In spite of my best efforts, I could not prevent the posterior edge cutting outwards as I advanced forwards and inwards.

teenth thick; they stand out at nearly a right angle from the curve, and are furnished, one with a groove, and the other with a projection, adapted to the groove. By this construction of the instrument, the surgeon is enabled to seize a considerable portion of the entire thickness of the velum, and to hold it horizontally, so as to insure a smooth and vertical section of this curtain. Thus, it possesses a great advantage over the instruments employed by Graefe and others, for the same purpose; because, with them, the mucous membrane is merely secured, and that only to a very limited extent; while the traction exercised by the muscles on the velum, withdraws it from this membrane, which is made steady by the forceps, consequently the incision is rendered superficial, irregular and partly convex.

The patient being seated near a lofty window, with his mouth open and his head fixed by an assistant, I take hold of one side of the velum with the forceps, being careful to embrace as much and no more than will prevent the muscles retracting this curtain from the mucous membrane. With the back of the knife turned towards the pharynx, I now transfix the velum obliquely upwards and backwards close to the extremity of the forceps, and by a steady sawing motion, divide it beyond the angle; then, turning the edge of the knife inwards and downwards, I complete the section with the same sawing motion. In a few minutes, when, by ablution with iced water, the hemorrhage ceases, I treat the opposite side in a similar manner. Should a portion of the bony palate be deficient, we ought to detach a few lines breadth of the velum on each side, according to circumstances, from the posterior border of the palate bone; a procedure first adopted by Roux, and which enables us to approximate the edges of this curtain with comparative ease. These transverse wounds granulate and heal without any trouble.

In case the patient be unsteady and cannot keep his mouth open, I employ a speculum, which answers the desired end most effectually.* This instrument is represented in plate i. It consists of two transverse bars, a prolongation of each of these bars, a common or vertical bar, screw, semilunar bar, roller and handle. Each transverse bar is three inches and three quarters in length, flattened at the extremities where they correspond to the teeth, and curved in the centre; the superior being adapted to the shape of the palate, and the inferior to the floor of the mouth. The extremities† of these bars are seven eighths of an inch long, five twelfths broad, and one twelfth thick, with the exception of the proximal extremity of the inferior bar, one third of which is a quarter of an inch thick, being in this part pierced with the screw. These extremities are also perforated with small holes, so that they may be capped with caoutchouc, to protect the teeth; while the central portions are not more than half as stout and rather round. The spatula is attached to the lower transverse bar, and, as I frequently use the instrument without it, or, as plates of different sizes may be required, I have it secured by a screw, so as to enable me to change or remove it at pleasure. The handle, which is about the size of that of a speculum ani, is attached to a continuation of the superior transverse bar. This portion of the instrument is traversed by the extremity of the screw, and, still nearer the handle, con-

*The insertion of corks between the teeth, as a means of keeping the mouth open, is a miserable contrivance. They not only shut out the light and entangle the saliva, mucus and blood, but so far diminish the interdental space, as to interfere very considerably with our manipulations.

† The term extremity is not strictly applied, as what are considered the proximal extremities, are not strictly so, being continuous with the other portions of the instrument. However, without such license, I could not so well convey a just idea of a very complicated instrument.

nected with the vertical bar. This last is two inches and seven eighths long, half an inch broad, and one sixth thick. It passes vertically from the point of junction of the handle and superior bar, and, three eighths of an inch from its inferior extremity, is bent at a right angle parallel to the transverse bars. This portion has attached to its extremity by two small screws, the semilunar bar, which is half an inch in length, and one sixth in breadth and depth. These, together, constitute a foramen, which transmits the screw. The centre of the vertical bar is open superiorly for two inches in length, and one sixth in width, forming a slit, through which passes, a prolongation of the inferior transverse bar, corresponding in size to the diameter of the slit. Having traversed the slit, this prolongation is bent downwards for seven eighths of an inch, and expands into an extremity furnished with a roller one third of an inch long and half an inch in circumference, which works on the vertical bar. The screw is four inches in length and seven eighths of an inch in circumference, terminating inferiorly in a large button. It is retained between the superior and vertical bars, as before mentioned, and works in a worm of the inferior, which, through the medium of the roller moving on the vertical bar, is thrown steadily upwards or downwards, at the will of the operator.

When the second period of the operation arrives, I complete it with the following apparatus, viz: suture instrument and knot-maker. The suture instrument is represented in plate ii, and consists of three parts; the first, which is inserted into a handle similar to that of an aneurism needle, is four inches and one quarter in length, one sixth of an inch broad, and one eighth thick, except about an inch and three eighths from its distal extremity, where it is contracted to one half its size, becomes circular, and is bent, nearly corresponding to the curve of a dissecting

hook. Two small rings are attached to it, one being situated on the most convex part, and the other one inch and an eighth nearer the handle. These rings are for transmitting the ligatures, which are thus prevented from becoming entangled or interfering with the sliding bar. The second, or needle, is three eighths long, and consists of three parts, viz: the blade, which is one sixth of an inch in length, triangular and furnished with shoulders; the middle, which is one eighth of an inch long and perforated for the transmission of the ligature; and the upper blunt or narrow prolongation, which is one twelfth of an inch long, and is lodged in the extremity of the curve of the first part. The third and last part of this instrument is a sliding bar, five inches and five eighths in length, one twelfth of an inch thick, and one sixth broad, terminating at its proximal extremity, in a small handle, and furnished, at the other, which is round and five eighths of an inch in circumference, with a spring and cavity for the reception of the blade and middle portion of the needle. This bar is connected with the body of the instrument by two bands, about an inch apart, and one inch and an half from its distal extremity, which stands outwards, so as to range with the needle.

The ligatures should consist of two threads of three twist silk, and be three feet in length: having passed the extremity of one ligature through the eye of the needle, then carried both extremities through the rings, and twisted them round the handle so as to secure the needle firmly in its socket, the curved extremity of the instrument should be carried behind the velum at the base of the uvula, and then brought forwards through this curtain three or four lines from its border, forcing it from behind forwards and from above downwards. When the point of the needle appears through the velum, the sliding bar should be pushed onwards

until it embraces the needle, and, through the medium of the spring-catch, holds it firm while withdrawn. The other extremity of the ligature is to be carried through the opposite side of the velum in the same manner. Another ligature should then be passed between the first and the angle of the wound, which in the majority of cases will be sufficient. I am of opinion that surgeons are in the habit of inserting too many sutures in these cases; for, then the wound becomes puckered, the inflammation is increased, as well as the number of ulcerated points, and, above all, the surface of union is less; for I have rarely seen a case, where, the parts included in the ligature adhere, a circumstance which depends, either, upon the immediate mortification of this delicate structure when the ligatures are too tight, or, when the knot is more judiciously made, upon the absorption which the parts undergo from the necessary pressure and the contact of the ligature.

The last part of the operation consists in tying the knots; and this I accomplish with the instrument represented in plate ii. This instrument consists of two parts, viz: one for making the noose and the other for retaining it in close contact while the second knot is made. The first part, or that for tying the knot, is fixed in a handle like the suture instrument, is three inches and three quarters in length, one sixth of an inch broad and one twelfth thick. It forks about one inch and a quarter from its distal extremity, the ends of the prongs being five eighths of an inch apart and bored for the transmission of the ligatures. About three quarters of an inch from the handle on its anterior face, is a ring with the superior portion cut out to the extent of one tenth of an inch; another arises from the prongs, seven eighths of an inch from their extremities, for the accommodation of which, they are compressed in this situation. The second portion consists of a slender bar, four and a half

inches long, furnished at the proximal extremity with a small handle, and at the distal with the forceps. For three eighths of an inch from the handle and the same distance from the forceps, this bar is square and one twelfth of an inch in diameter; between these portions, it is one eighth of an inch broad and one sixteenth deep. The forceps is seven eighths of an inch long, the inferior portion of which is continuous with the bar just described, but, on a line one twelfth of an inch below it; while the proximal extremity of the superior portion is furnished with a strong spring that works upon the inferior. Both portions are connected by a semilunar joint, and the chops are three eighths of an inch long. This second portion of the instrument is placed on the first and secured in the brackets above described, with the chops of the forceps open, because of the pressure of the distal bracket on the superior portion of the forceps.

Before tying the ligatures, we ought gradually to draw each of them forwards, and, while holding them steadily so as to prevent any drag on the palate, an assistant should wax them anew; a proceeding of the utmost importance, for by their long stay in the mouth they are apt to collapse and the knots to give way. This being done, the lowermost ligature should be tied first, in the following manner:—the ends being passed through the holes in the prongs of the instrument, the latter should be pushed onwards until the edges of the palate are approximated, taking care not to tie too tight, else the ligatures will destroy the vitality of the parts included; and here we find the advantages of allowing the velum to swell before we pass the sutures, as then we know how tight we ought to tie. The knot being made, the forceps should be pushed forwards, so that it may grasp the knot by virtue of its spring, the counteracting force being removed by change of position. By the greater narrowness of the bar near the forceps and handle, it will now slip out of the

brackets and remain hanging from the mouth, while we make another noose, which is to be treated in the same manner. The second ligature ought then to be secured like the first, and thus the operation will be completed.

The subsequent management of the patient is of great importance. Besides enjoining him to avoid coughing, swallowing and speaking, we ought to advise him to sit erect, to keep his mouth shut, and avoid sleeping; for when in a horizontal position, the breathing is laborious, and there is a tendency to sleep. When such patients are allowed to sleep, they breathe heavily and keep the mouth open, in consequence of which, the throat dries and they are apt to start up and tear out the sutures in an effort to swallow. If there be a tendency to cough, I order five drops of laudanum occasionally, which either checks or moderates it. The mucus, which collects in the throat, will increase as the inflammation subsides, and on the third or fourth day will be easily evacuated, if the patient will lie on his side, hold his head low and make moderate efforts to dislodge it. In order to subdue the inflammation, the mouth should be kept cool and clean by rinsing it with iced water, an expedient which will greatly contribute to allay the thirst.

The superior suture should be removed on the fourth, and the inferior on the fifth day; for by this time, they have become loose, and by collecting vitiated secretions, as well as by their presence, are apt to create erysipelatous inflammation and ulceration.

After the operation, we ought to inject a cup full of strong beef tea every two or three hours into the rectum, which will not only sustain the patient, but, by supplying the blood with fluid, will diminish the inflammation of the fauces, a consequence which is sure to ensue, when the system is not supplied with fluid. If the quantity here recommended purges, it should be diminished.

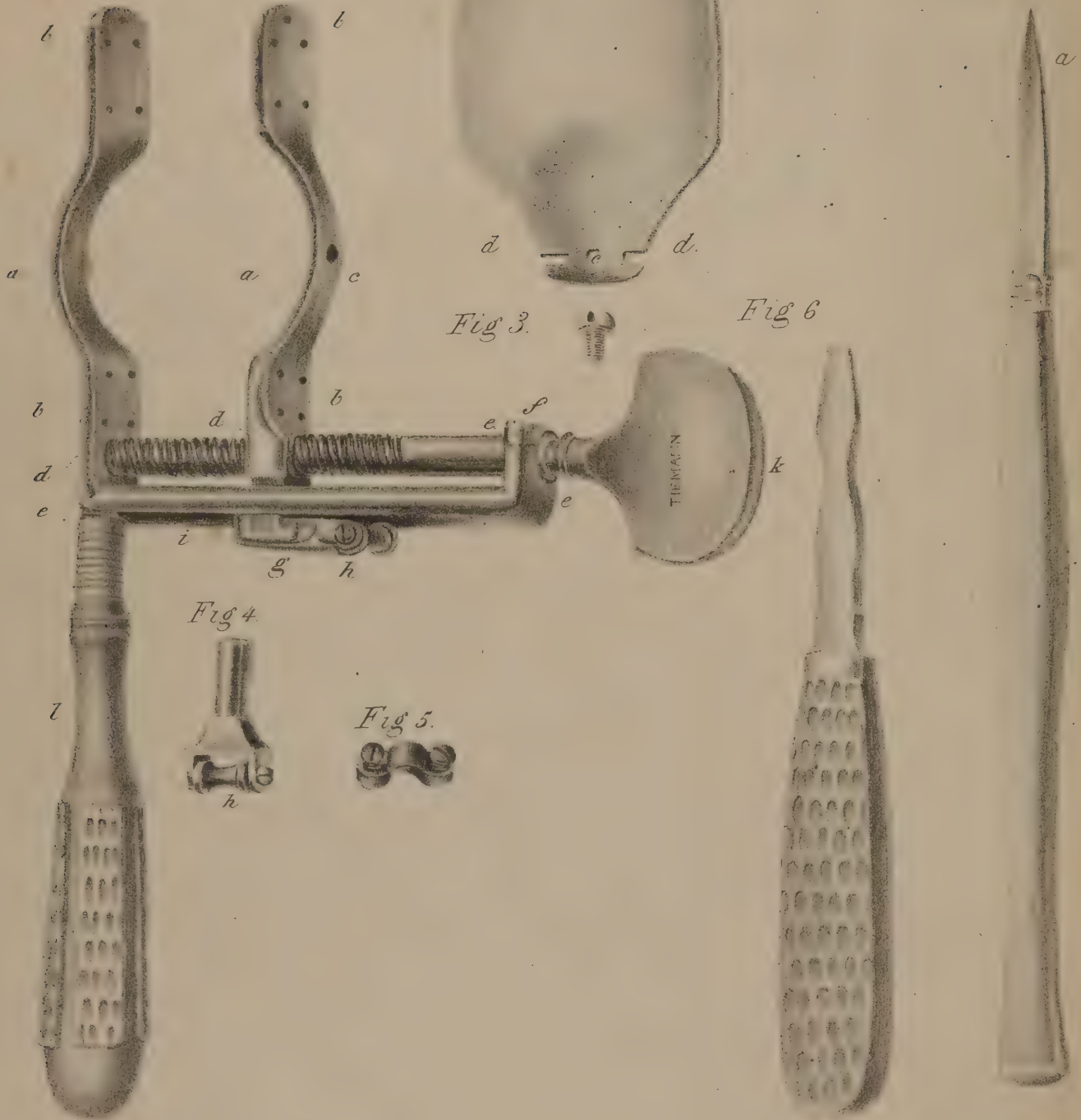


PLATE F.

Fig 2.

Fig 1

Fig 7.



J. W. MacCall, del.

Lith of Stodart & Currier

J. H. Bufford on Stone.

EXPLANATION OF THE PLATES.

PLATE I.

FIGURE 1. The speculum.

- a. a. The transverse bars.
- b. b. b. b. The extremities of the transverse bars pierced with holes, so that they may be capped with caoutchouc.
- c. The hole in the inferior transverse bar for the small screw, (Fig. 3,) by which the spatula is attached to it.
- d. d. The continuation of the transverse bars.
- e. e. e. The vertical bar bent at a right angle near its inferior extremity.
- f. The semilunar bar. (Fig. 5.)
- g. That portion of the prolongation of the inferior transverse bar which is bent downwards. (Fig. 4.)
- h. The roller attached to g.
- i. The slit in the vertical bar, for the transmission of the prolongation of the inferior transverse bar.
- k. The screw.
- l. The handle.

FIGURE 2. The spatula.

- c. The hole for the transmission of the small screw.
- d. d. Notches for the reception of small brackets placed on the superior surface of the inferior transverse bar.

FIGURE 3. The small screw.

FIGURE 4. The vertical portion of the inferior transverse bar.

- h. The roller.

FIGURE 5. The semilunar bar, which is attached by two small screws to the horizontal portion of the vertical bar.

FIGURE 6. The turn-screw for taking off and putting on the spatula.

PLATE II.

FIGURE 1. The suture instrument.

- a. The first part or body of the instrument.
- b. b. Two small rings for the transmission of the ligatures.
- c. The curve resembling that of a dissecting hook.
- d. The needle (Fig. 2,) inserted into the extremity of the curve c.
- e. The sliding bar.—f. The handle of the sliding bar.
- g. The other or inferior extremity of the sliding bar, which stands outwards so as to range with the needle.
- h. The cavity in the extremity, g. for the reception of the needle.
- i. The spring-catch for seizing and retaining the needle when forced into the cavity, h.
- k. k. The bands by which the sliding bar is connected with the body of the instrument.—l. The handle.

FIGURE 2. The needle.

FIGURE 3. The knot maker.

- a. The first part or body of the instrument.
- b. b. The prongs perforated for the transmission of the ligature.
- c. c. The cut rings or brackets, for the reception and retention of the second part of the instrument.
- d. The handle.—e. The second part.

FIGURE 4. The second part of the instrument.

- a. The slender bar.—b. The handle.
- c. c. The reduced portions of the bar, so that it may slip out of the cut rings or brackets on the body of the instrument when pushed onwards.
- d. The forceps.
- e. The superior half.—f. The inferior.
- g. The joint.—h. The spring.
- i. Shows how the inferior half is set back from the slender bar.

FIGURE 5. The forceps.

- a. a. The extremities.
- b. The groove.—c. The projection fitted to the groove.

FIGURE 6. The knife.

- a. The cutting edge extending for a quarter of an inch on its back.

Fig 1.

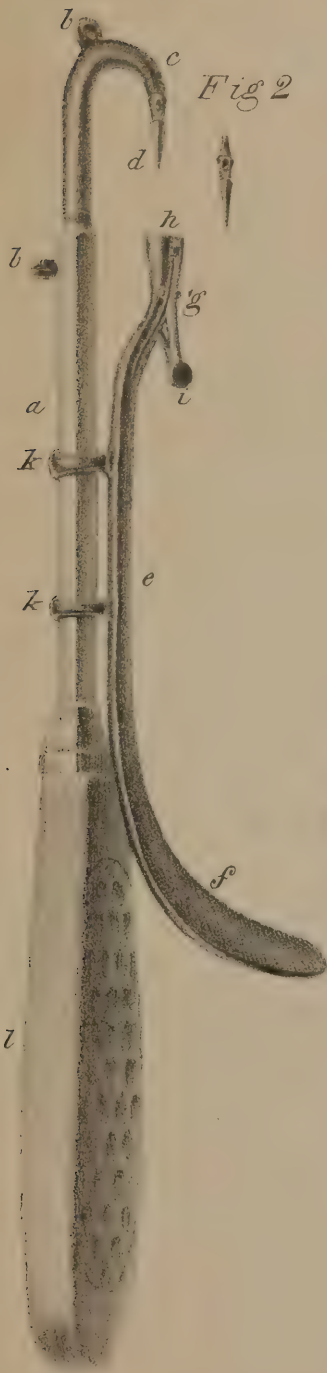


Fig 2.

Fig 3.



Fig 4.

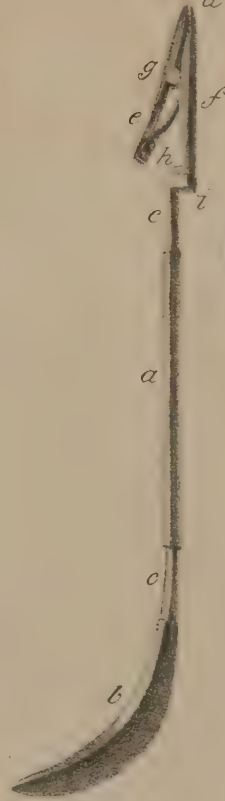
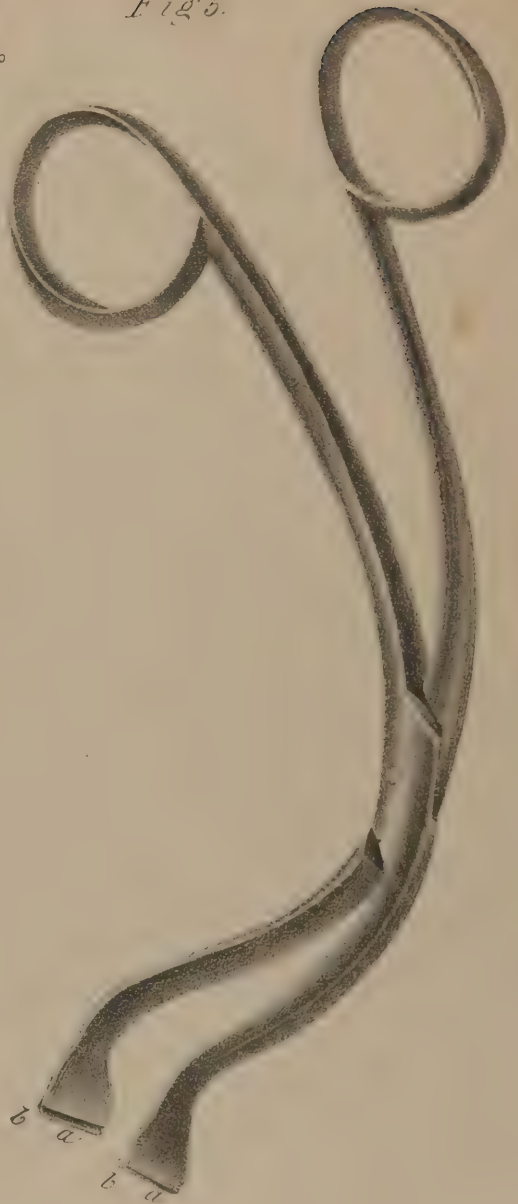


Fig 5.



Dr Westmacott Del.

Lith of Stedant & Currier

J H F. Stone



St. John